Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Part 90	)	
of the Commission's Rules	)	**PR DOCKET NO. 93-61**
to Adopt Regulations	)	**RM 8013**
for Automatic Vehicle	)	
Monitoring Systems	)	
	)	

To: The Commission

NORTH AMERICAN TELETRAC AND LOCATION TECHNOLOGIES, INC.'S REPLY TO OPPOSITIONS TO APPLICATION FOR FREEZE

PRESTON GATES ELLIS
& ROUVELAS MEEDS
STANLEY M. GORINSON
JOHN LONGSTRETH
1735 New York Ave., N.W.
Suite 500
Washington, D.C. 20006
(202) 628-1700

Counsel for North American Teletrac and Location Technologies, Inc.

Of Counsel:

KELLER & HECKMAN
JOHN B. RICHARDS
1001 G Street, N.W.
Suite 500 West
Washington, D.C. 20001
(202) 434-4100

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SUMMARY

Comments opposing the freeze requested by North American Teletrac and Location Technologies, Inc., through their joint venture PacTel Teletrac ("Teletrac"), demonstrate that a freeze is necessary to preserve the Commission's regulatory flexibility, to protect Teletrac's operations, and to apply the Commission's rules consistently and fairly. Continued regulatory uncertainty is delaying the deployment of wideband pulse-ranging (WBPR) AVM technology, depriving the public of the benefits of these systems and causing substantial harm to Teletrac. The comments confirm that these problems will only worsen absent a freeze. If the Commission does not impose a freeze now, the proliferation of *nonconforming* systems may significantly hamper its ability to fashion a coherent and workable approach to AVM licensing.

Comments of the American Association of Railroads (AAR) confirm the railroads' intent to deploy thousands of potentially interfering tag readers, with over 1.4 million vehicle tags, by 1995. Comments of Pinpoint Communications, Inc. and Amtech Corporation concede that additional AVM licensing will, as is only natural, increase potential interference with existing wideband pulse-ranging (WBPR) systems. The current regulatory uncertainty has even led to issuance of Special Temporary Authorities for AVM operations on frequencies already assigned to Teletrac.

The freeze opponents do not even attempt to address Teletrac's showing that the continued licensing of narrowband AVM systems on the frequencies assigned for wideband pulse-ranging systems

violates the plain language of the Commission's rules. Moreover, the Commission's NPRM recognizes the incompatibility of narrowband and wideband pulse-ranging systems. WBPR systems will be harmed if thousands or even hundreds of readers are deployed and permitted to operate for several years before migration to a different band. These readers block WBPR signals and interfere with the operation of WBPR systems.

Similarly, the opponents' contention that the current AVM rules allow licensing of multiple WBPR systems on the same band is contrary to the language of the rules themselves as well as their intent. In any event, the opponents have offered no reason why the Commission should prejudice its rulemaking by allowing new operators to share spectrum with existing wideband pulse-ranging system licensees. Such sharing raises significant, indeed insuperable, problems which the rulemaking is designed to explore. If new licensees are allowed in now, they can be expected to significantly complicate the Commission's attempt to resolve these problems upon completion of its rulemaking.

Finally, the freeze opponents have offered no credible demonstration that they would suffer any harm from a freeze. Pinpoint has admitted that its system is years away from operation. Ample spectrum unaffected by the freeze, including 902-904 MHz, 912-918 MHz and 926-28 MHz, can be made available for the narrowband systems supported by Amtech and the AAR. A freeze on further AVM licensing on the WBPR frequencies would thus further the public interest and the orderly procedures of the Commission.

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Three parties, the Association of American Railroads (AAR), Pinpoint Communications, Inc. (Pinpoint) and Amtech Corporation (Amtech) have opposed Teletrac's application for a freeze of further AVM licensing on the 904-912 and 918-926 MHz bands until completion of the Commission's pending AVM rulemaking.[1]

The oppositions offer no valid justification why the Commission should prejudge its current rulemaking, and increase the complexity and burden of its attempts to establish a workable AVM regime, by licensing additional AVM services on the same frequencies as are now occupied by wideband pulse-ranging AVM services. To the contrary, the comments themselves demonstrate both the need for a freeze, and the lack of any harm to the opponents if a freeze is imposed.

Teletrac's application showed that it is already suffering harmful interference from narrowband AVM systems operating on its

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[1] A fourth party, Mark IV IVHS Division (Mark IV), has filed comments on the application which are not styled an opposition, but are generally opposed to a freeze.

[redacted]

total of 36 sites in Houston, Texas, and is filling an initial order for 1,000 AVI transponders.[4] Teletrac already has an operating system in Houston which would be adversely affected by interference from this new installation.

Pinpoint and Amtech concede that "[i]n a shared spectrum environment, it is only natural that additional licensing will, at least theoretically, increase the possibility of interference."[5] The concern may be theoretical for Pinpoint, which is years away from an operating system, but it is far from theoretical for Teletrac. Teletrac's operating system is already affected by harmful interference from users sharing its spectrum, and Teletrac already faces regulatory uncertainty that significantly harms its ability to deploy its system.

Pinpoint and Amtech argue that the FCC should plunge ahead nonetheless to license interfering systems, rather than awaiting the results of this rulemaking designed to address the very issue of whether such spectrum sharing is feasible and desirable. There is no reason for the Commission to do so. Not only would this course increase the regulatory burdens on the Commission, it is completely unnecessary. Pinpoint has admitted its system is years away from operation, and does not now work.[6] Amtech's narrowband

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[4] "Amtech to Install AVI for Surveillance on Houston Freeways," Inside IVHS, June 7, 1993, at 1. See Exhibit 2.

[5] Amtech Opposition, at 6. See Pinpoint Opposition, at 8.

[6] Pinpoint's President recently stated that Pinpoint needs at least 18 more months to test its system, and that it will be many more months before the system gets to market. (Land Mobile News, April 23, 1993, at 5.)

system can be licensed on many other frequencies, including 902-04 MHz, 912-918 MHz, and 926-928 MHz, even if a freeze is imposed. These are, of course, the very frequencies on which such systems would be required to operate under the NPRM.

Since Teletrac's application for a freeze was filed, Teletrac has become aware of new examples of the harm and disruption caused by the issuance of authorities in violation of the Commission's existing rules and the principles set forth in the NPRM. On May 28, 1993, the Salt Lake City Airport Authority received a Special Temporary Authorization (STA) to operate throughout the 902-928 MHz band.[7] This STA does not even specify any discrete frequencies within the band, making it impossible to determine where transmissions under the STA would occur. Moreover, the STA became effective almost two months after Salt Lake City received permanent authority to operate at seven specified frequencies within the 918-926 MHz band.[8]

The Commission has thus issued temporary authority for commercial operations throughout the band on which Teletrac operates, raising the potential for conflict with Teletrac's system. The Commission has done so even though that authority would appear to be completely unnecessary given its prior grant of

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[7] See Exhibit 3. A similar STA for commercial operations was granted to Vulcan Chemicals on March 1, 1993 for a site in Wichita, Kansas. See Exhibit 4.

[8] See Exhibit 5.

permanent authority to Salt Lake City for specific frequencies.[9] This starkly demonstrates the extent to which current licensing actions are departing from the Commission's rules and from the

ation even attempt to address the plain language of the Commission's rules. The continued allocation of narrowband operations into the frequencies allocated for WBPR services plainly violates the provision of the interim rules that such frequencies are assignable only to the designated narrowband locations outside these bands.[11]

Nor do the commenters opposing Teletrac's application effectively address the Commission's actions in the NPRM, which strongly confirm the wisdom of the current rules separating narrowband and WBPR communications. The NPRM expressly states that narrowband systems interfere with wideband pulse-ranging systems, "making it difficult if not impossible for the system to operate effectively." (NPRM ¶ 14). Accordingly, the NPRM proposes that narrowband systems not be licensed on the bands occupied by WBPR systems (id.), and proposes further that, after a transitional period, existing narrowband operators be migrated to the bands set aside for narrowband operations. (Id. ¶ 16).

The AAR suggests that since the NPRM is not final, and invited comments on alternatives, the FCC has "left open entirely the ultimate issue regarding continued use of the 904-912 and 918-926 bands by tag reader systems such as the one used by the rail-

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reallocation should encompass also those AVM techniques, other than the wideband method, which are able to tolerate possible interference from ISM or government operations Thus, the frequencies 903-904 and 926-27 MHZ, which had been included in the proposed reallocation for wideband AVM, are being made available for such other systems.") (emphasis added).

[11] 47 C.F.R. § 90.239(c)(2).

roads."[12] This statement turns a blind eye to the Commission's detailed separation proposal, presuming it likely that the Commission will take the unlikely step of completely reversing its course, and its present rules, to expressly permit the licensing of narrowband systems on the frequencies allocated for WRRR service

Teletrac seeks to enforce.[14] This assertion is simply untrue. The Commission's current rules allow "pulse-ranging AVM systems" to be licensed in the 904-912 and 918-926 MHz bands,[15] while assigning narrowband "AVM systems" to the 903-904 and 926-927 MHz bands.[16] The forward links Teletrac operates in the 924.890 to 925.140 MHz band are necessary parts of its wideband system, and hence have been properly assigned.[17] The narrowband readers operated by Amtech and other operators, and supported by AAR, are not part of any wideband system and are, unlike Teletrac's forward links, not properly assigned to the WBPR frequencies.

Amtech and Pinpoint also make the argument that a freeze is not necessary because the Commission can always order that narrowband operators migrate out of the WBPR frequencies after the rulemaking has been completed, and has put licensees on notice that their operations may be subject to later modification.[18] That migration is proposed to take up to three years, however, which is an unacceptably lengthy period of time for Teletrac systems to tolerate harmful interference. In fact, under the present regime, it is Teletrac which is being frozen, as the current regulatory

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[14] Amtech Opposition, at 4-5; Pinpoint Opposition, at 6-7 n.17.

[15] 47 C.F.R. § 90.239(c)(1)(emphasis added).

[16] 47 C.F.R. § 90.239(c)(2)(emphasis added).

[17] The NPRM also recognizes that forward links are properly part of WBPR systems, and proposes that they continue to be

uncertainty and the interference from AVI systems have caused Pactel Corp. to refrain from supplying the capital needed to roll out additional systems. In any event, pressing ahead with authorizations the Commission will simply have to undo later is not consistent with the efficient conduct of administrative proceedings, and makes no public policy sense.

B. Licensing of Additional WBPR Systems On Frequencies Teletrac Already Occupies Should Await Completion of the Pending Rulemaking.

Amtech and Pinpoint also argue that the Commission should proceed to license additional WBPR systems on the 904-912 and 918-926 MHz bands, even in areas where existing wideband operators already hold licenses. Amtech and Pinpoint contend that a footnote in the NPRM rejects the argument that wideband pulse-ranging systems should be licensed on an exclusive basis, and that this footnote "should singlehandedly dispose of most of the arguments in the Freeze Request."[19] Of course, this position is directly

Teletrac's request for a freeze does not require the FCC to conclude that it decided in 1974 to allow only one wideband pulse-ranging system to be licensed in each of the 904-912 and 918-926 MHz bands. As Amtech and Pinpoint concede, "[i]n a shared spectrum environment, it is only natural that additional licensing will, at least theoretically, increase the possibility of interference."[22] Teletrac seeks the freeze to allow a proper assessment of this admitted potential for interference. Otherwise the Commission will be presented with a fait accompli, or at the very least a formidable administrative problem, should it conclude that sharing is not feasible. Once on the band, newly licensed WBPR operators would no doubt assert some kind of right to stay on the band, or some kind of limitation on the Commission's ability to curtail or eliminate their interfering operations, thus greatly complicating any migration solution.

Thus, although Teletrac certainly believes that the Commission did, in fact, decide in 1974 that only one wideband pulse-ranging system should be licensed in each band,[23] granting the freeze application does not require the Commission to decide the co-channel separation issue in advance of the rulemaking. It merely requires acceptance of the unarguable propositions that the Commission has put at issue whether such separation is desirable in the future, and that granting additional WBPR licenses before that

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[22] Amtech Opposition, at 6. Accord, Pinpoint Opposition, at 8.

[23] See Teletrac's Petition for Rulemaking, at 24-28; Teletrac Freeze Application, at 6-9, and pp. 14-18, infra.

rulemaking is completed would seriously disrupt the orderly

to the Commission's intent in adopting the interim rules.[26] This

C. Licensing of Additional WBPR Systems On Frequencies Teletrac Already Occupies Is Inconsistent With The Commission's Current Rules.

Assuming the Commission finds it necessary to consider the issue to decide Teletrac's application, Teletrac renews its contention that the Commission's rules already contemplate that only one wide-band pulse-ranging system will be authorized on each

nonexclusive as Pinpoint and Amtech contend. The provision is intended to assure that an applicant does not preempt the second channel in a market unless its capacity needs require it. It would have little purpose if any entrant were free to enter that band at any time.

Moreover, the rules contemplate that a WBPR applicant will face potential interference only from the governmental and ISM users who are primary users of the band, not from other AVM systems. This, of course, is the case if only one WBPR AVM system is assigned to each band, and narrowband systems are assigned to the separate bands reserved for their use. Amtech's and Pinpoint's position, however, requires the illogical supposition that the Commission assumed many AVM systems would be introduced onto the WBPR frequencies, but provided interference provisions addressing only the governmental and ISM users and not these additional AVM systems.[30]

As noted above, the Commission's discussion of this issue in the NPRM, on which Amtech and Pinpoint rely so heavily, is flawed because it does not address the language of the rules themselves. Moreover, the past proceedings of the Commission, including the history of the adoption of the AVM rules, confirms that only one WBPR system was intended to be licensed in each of the 8 MHz bands. Indeed, in summarizing its past licensing proceedings in general, the Commission has recently stated that "the concept of exclusivity

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[30] By contrast, in the NPRM, the Commission has proposed rules to govern the entry of additional operators onto the same band. NPRM ¶¶ 22, 23.

has gained such general acceptance that it has become viewed as an automatic feature of new allocations to the [private land mobile radio] services."[31]

The NPRM states that "at the time the interim rules were adopted there were no licenses being granted on an exclusive basis in private land mobile services. Exclusive licenses were not adopted until May 1974 ."[32] This is in error. The interim

provide an environment of experimentation."[34] The

the Commission to have considered or adopted exclusivity for WBPR systems.

II. THE OPPOSITIONS THEMSELVES DEMONSTRATE THAT A FREEZE IS NECESSARY.

In its Application for a freeze, Teletrac noted that the pace of nonconforming narrowband applications for authorization in Teletrac's band has been continuing, despite the Commission's reaffirmation in the NPRM of the principle, also contained in the Interim Rules, that narrowband and WBPR systems are incompatible and should be separate. Teletrac pointed out that, absent a freeze, continued licensing of narrowband systems in the WBPR allocation will increase the potential for interference and actual interference.[39]

The comments filed by AAR offer powerful support for Teletrac's contentions. AAR concedes that continued deployment of its Automatic Equipment Identification (AEI) tag readers will result by 1995 in over 1.4 million rail vehicles equipped with AEI tags, as well as 3000 to 5000 tag readers throughout the United States and Canada.[40] Since only "several hundred tag readers" are operating to date,[41] AAR is promising to increase the number of readers by ten to sixteen times in only two years. The number of tags will, of course, increase much faster than the number of tag

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[39] Teletrac Application, at 2.

[40] AAR Petition, at 2.

[41] Id.

readers. The threat Teletrac perceives to its operations is not overstated.[42]

Additional support for Teletrac's application comes from the affidavit of Louis H.M. Jandrell, Pinpoint's Vice President of Design and Development, submitted in support of Pinpoint's Opposition. The affidavit mischaracterizes the position of Dr. Jackson, whose affidavit was submitted on behalf of Teletrac, in an attempt to create the appearance of a factual dispute. However, it actually confirms Dr. Jackson's contentions.

Dr. Jackson's affidavit demonstrates that a carrier-sense multiple access protocol, of the type used to share frequencies in the air-to-ground radio-telephone service, will not work in the AVM context because the short duration of the pulses makes listening inefficient. Mr. Jandrell agrees with this analysis, but asserts that Pinpoint has "never proposed the use of this method."[43] Mr. Jandrell does not, however, favor the Commission or Teletrac with any explanation of exactly what system Pinpoint has in mind to solve this problem, choosing instead to offer hypothetical suppositions on what might work.[44]

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[42] AAR's comments are confirmed by a recent article in Amtech's "Backscatter" Newsletter, "APC Takes Bold Step to Automate Container Tracking", Spring, 1993, at 1, which reports that one of Amtech's clients "has placed an initial order for 100,000 tags to be delivered in 1993," with 50,000 additional tags to be delivered thereafter.

[43] Jandrell Affidavit, Exhibit A to Pinpoint Opposition, ¶ 10.

[44] Id., ¶¶ 15-17. The hypothetical schemes he posits have, on their face, significant difficulties, as Dr. Jackson's reply affidavit points out. See Jackson reply aff. ¶¶ 6-7.

In fact, as Dr. Jackson points out in his reply affidavit, attached as Exhibit 6, in each case of which he is aware in which FCC-licensed services have successfully shared spectrum, either some form of carrier-sense protocol was used, or the licensees

time.[47] Given that Mr. Jandrell's affidavit provides no clue whether Pinpoint's system could actually operate under the hypothetical sharing scenarios he proposes (and, indeed, given that the Pinpoint system does not yet even work), it is not surprising that he suggests that the burden be put on Teletrac to modify its system "so as to make sharing a possibility."[48]

III. THE AD HOMINEM ATTACKS OF PINPOINT AND AMTECH ON TELETRAC'S SYSTEM AND COMMISSION FILINGS ARE ABSOLUTELY WITHOUT BASIS.

Bereft of any other support for their opposition to Teletrac's motion, Pinpoint and Amtech set out a variety of unsupported allegations about Teletrac's system and its motives in making certain filings. These allegations are merely an attempt to divert attention from the real issues in the proceeding, and are absolutely without basis.

Pinpoint, joined by Amtech, criticizes Teletrac for building its systems too slowly.[49] Of course, Teletrac could be deploying its systems more quickly if not for the harmful interference caused

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[47] Id. ¶¶ 14, 24.

[48] Id. ¶ 20. Mr. Jandrell's affidavit contains numerous other errors as well. For example, he dismisses asynchronous transmissions as irrelevant and inefficient, ¶¶ 21-22, despite the fact that such transmissions are an important safeguard in providing stolen car locator services, and despite the fact that the criticism would apply to Pinpoint's proposal as well. Jackson reply aff. ¶¶ 4-5. He also fails to address the substance of Dr. Jackson's observation that multiple systems require multiple overhead transmissions, which constitutes pure spectrum waste. Id. ¶ 8. Again, Mr. Jandrell tries to dismiss the problem, but since Pinpoint has no working system, he is hardly in a position to do so.

[49] Pinpoint Opposition, at 11-12; Amtech Opposition, at 7, 9-10.

by Amtech and other operators. In any event, Teletrac is the only company with constructed and operating WBPR systems, and has recently brought two new systems, in Houston and Miami, into operation. The Commission itself recognized the complexity of Teletrac's system in giving Teletrac five years to build out its systems. In other contexts, the Commission has granted licensees up to ten years to build complex systems.[50] Pinpoint of course cannot deny that its system is at least two years away from operation.

Pinpoint also criticizes Teletrac's system as fragile, going so far as to tout the superiority of its own supposedly "robust" system.[51] The force of this point is undercut considerably by the admission of Pinpoint's President that Pinpoint's system does not work.[52] As discussed at pages 19-20 above, the Commission should view skeptically Pinpoint's assertions about the robustness of its technology and its ability to engage in successful frequency sharing, given that Pinpoint has yet to prove that its technology works.

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[50] See, e.g., 220-222 MHz Report and Order, 6 FCC Rcd ¶ 65-69; Waiver of Sections 90.621(d), 90.623(a), 90.629, 90.633, and 90.651(c) of the Commissions Rules, 3 FCC Rcd 427, 428 (1988).

[51] Pinpoint Opposition, at 11-12.

[52] Explaining why 18 months of additional testing will be needed before its system can be brought to market, Pinpoint's President stated, "You can't offer a service that doesn't work." (Land Mobile News, April 23, 1993, at 5.) In light of Pinpoint's own statements, it is unclear at best how Pinpoint would meet the eight month construction schedule imposed on new licenses under the NPRM (NPRM ¶ 26).